No. 7400013

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Moran Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Calmaria'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 9th *day of* May *in the year of our Lord one thousand nine hundred and* seventy-four

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(2-12-71)

UNITED STATES DEPARTMENT OF AGRICULTURE
CONSUMER AND MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
Calmaria	Lettuce	PVPO NUMBER 7400013
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 9/5/73 / TIME 1:30 P.M.
Lactuca sativa	Compositae	
	5. DATE OF DETERMINATION: May 11, 1972	FEE RECEIVED $50.00 / CHARGES

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Moran Seeds, Inc.	1155 Harkins Road Salinas, California 93901	(408) 424-1875

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	California	8-15-63

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Donald G. Bergam
Moran Seeds, Inc.
1155 Harkins Road
Salinas, California 93901

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*
- [X] 12B. Exhibit B, Botanical Description of the Variety
- [X] 12C. Exhibit C, Objective Description of the Variety
- [X] 12D. Exhibit D, Data Indicative of Novelty
- [X] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable. *(See Section 52, P.L. 91-577).*

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a), P.L. 91-577) (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [ ] NO	14C. If "Yes," to 14B, how many generations of production beyond breeder seed?

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act (P.L. 91-577).

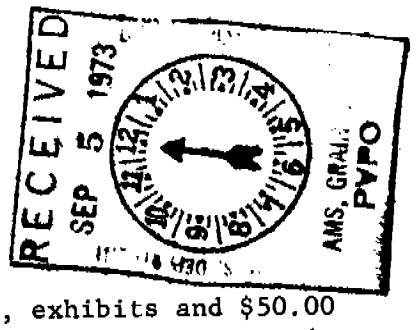
August 31, 1973
(DATE)

Donald G. Bergam
(SIGNATURE OF APPLICANT)

1

(DATE)

(SIGNATURE OF APPLICANT)



INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $50.00 fee to U.S. Dept. of Agriculture, Consumer and Marketing Service, Grain Division, Hyattsville, Maryland 20782. Retain one copy for your files. All items on the face of the form are self-explanatory unles noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety.

12a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

12b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

12c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

12d Provide complete data indicative of novelty. Seed and plant specimens may be submitted and seeds submitted may be sterile. Where possible, include photographs of plant comparisons, chemical tests, etc.

12e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

EXHIBIT A

Origin and Breeding History of the Variety

1. Calmaria originated in the Salinas Valley of California from a single plant selection made in a commercial field of the variety Calmar in late July of 1965. The breeding history and description of Calmar may be found in California Agriculture, "Calmar - A New Lettuce Variety Resistant to Downey Mildew", Volume 19, Number 8, August 1965. The single plant selection was designated F406 B4. A further single plant selection was made in F406 B4 in 1966 followed by three generations of mass selection in 1967-69. The genetic makeup was stabilized following the third generation of mass selection.

2. The mass selections were made based on earliness of maturity, uniformity, and surer-heading ability in relation to Calmar. Observation and yield tests were made in seven trial plantings in the Salinas Valley for two years. (See data attached) The first small seed multiplication was made in 1971 in the Five Points area of the San Joaquin Valley.

3. Two plant-type rogues are found in Calmaria:
(1) A large, coarse plant with smoother leaf texture, plainer leaf margins and outer leaves approximately 50% larger than Calmaria. The rogue develops a soft, loose, non-marketable head. The frequency of this rogue in Calmaria is one plant out of 1,000. In the variety Calmar, the frequency of this rogue is 1.8 plants out of 1,000.

(2) A natural rogue mutation found in most Great Lakes varietal types. The rogue is a semi-cos type plant with leaves longer than broad, darker green color and poor heading ability resulting in non-marketable heads. The frequency of this rogue in Calmaria is one plant out of 7,000. In Calmar the frequency of this rogue is 4 plants out of 7,000.

In addition to the two plant type rogues described above, a black seed mutation is found in normally white seeded Calmaria but at a much lower frequency than found in Calmar. Inspection of seed heads prior to harvest in production fields located in the Five Points area of the San Joaquin Valley gave the following frequencies of the black seed mutation in Calmaria and Calmar. (1) Calmaria - 2 black seed mutations in 41,000 plant count. (2) Calmar - 18 black seed mutations in 44,600 plant count.

As further evidence of the stability and distinctness of Calmaria, a letter from Dr. James E. Welch, University of California at Davis, is enclosed stating his opinion of Calmaria after observation of the variety in his trials. Dr. Welch is an Associate Olericulturist at the University of California, and is responsible for the development of Calmar.

All packets of seed of Calmaria for trial plantings and all packages of seed for commercial sale have been labelled: NOTICE - Propagation prohibited. Application for plant variety protection contemplated.

EXHIBIT A

Origin and Breeding History of the Variety

Yield and Maturity Data

The following yield and maturity data were obtained from seven trial plantings in the Salinas Valley in 1971 and 1972. Similar cultural practices were used in the growing of the trials as used in commercial plantings. The varieties were replicated four times in each trial using 50 foot long beds per replication with two rows per bed. Maturity data are based on the period from first irrigation to harvest.

Trial No. 1: Moran Trial Grounds. Irrigated June 1, 1971

Calmaria
- First cutting - August 3 — Yield: 560 cartons per acre
- Second cutting - August 10 — Yield: 235 cartons per acre

Calmar
- First cutting - August 7 — Yield: 340 cartons per acre
- Second cutting - August 14 — Yield: 390 cartons per acre

Trial No. 2: Moran Trial Grounds. Irrigated July 5, 1971

Calmaria
- First cutting - September 7 — Yield: 680 cartons per acre
- Second cutting - September 14 — Yield: 155 cartons per acre

Calmar
- First cutting - September 12 — Yield: 380 cartons per acre
- Second cutting - September 18 — Yield: 370 cartons per acre

Trial No. 3: Harden Farms - Ranch 4. Irrigated July 18, 1971

Calmaria
- First cutting - September 24 — Yield: 620 cartons per acre
- Second cutting - September 29 — Yield: 140 cartons per acre

Calmar
- First cutting - September 27 — Yield: 375 cartons per acre
- Second cutting - October 1 — Yield: 345 cartons per acre

Trial No. 4: Moran Trial Grounds. Irrigated May 1, 1972

Calmaria
- First cutting - July 5 — Yield: 570 cartons per acre
- Second cutting - July 11 — Yield: 180 cartons per acre

Calmar
- First cutting - July 9 — Yield: 350 cartons per acre
- Second cutting - July 15 — Yield: 360 cartons per acre

Trial No. 5: Harden Farms - Ranch 12. Irrigated May 25, 1972

Calmaria
First cutting - July 29 Yield: 490 cartons per acre
Second cutting - August 4 Yield: 115 cartons per acre
605

Calmar
First cutting - August 1 Yield: 310 cartons per acre
Second cutting - August 7 Yield: 280 cartons per acre
590

Trial No. 6: Tanimura Brothers Farms. Irrigated June 21, 1972

Calmaria
First cutting - August 22 Yield: 550 cartons per acre
Second cutting - August 29 Yield: 300 cartons per acre
850

Calmar
First cutting - August 25 Yield: 350 cartons per acre
Second cutting - September 1 Yield: 400 cartons per acre
750

Trial No. 7: Tanimura Brothers Farms. Irrigated July 3, 1972

Calmaria
First cutting - September 6 Yield: 800 cartons per acre
Second cutting - September 11 Yield: 100 cartons per acre
900

Calmar
First cutting - September 9 Yield: 400 cartons per acre
Second cutting - September 14 Yield: 350 cartons per acre
750

EXHIBIT A

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF VEGETABLE CROPS
DAVIS, CALIFORNIA 95616

March 14, 1973

Mr. Donald G. Bergam
Moran Seeds, Inc.
1155 Harkins Road
Salinas, California 93901

Dear Don:

I apologize for being so slow in answering your letter of February 23. I was away from January 28 to February 28 and again from March 5 to 7. I have just finished going through my mail.

Calmaria was included in four trials in the Salinas-Watsonville and Brentwood districts in the 1972 season. Our standard set of harvest-stage records were obtained in each experiment. Calmaria, Cal K-60 (K 60), and Cabrillo (K 121) were included at two planting dates in our 1972-73 Imperial Valley plantings but no records were taken on these cultivars. The first planting was in the prime market stage about one week after Ken Bryant saw it.

The subjective records obtained in our Salinas-Watsonville and Brentwood trials showed that Calmaria has smaller heads than Calmar. Calmaria undoubtedly matures a few days earlier than Calmar. Seedstalk elongation in Calmaria was slightly slower than in Calmar. Calmaria might possibly be more susceptible to tipburn than Calmar, and more resistant than Great Lakes 65. These are the salient features of our findings.

My mental picture of Calmaria is very different from the one I have of Calmar and in my opinion this new cultivar is distinct. I am sorry we have no comparable records on Cal K-60 and Cabrillo.

We would be able to include up to about four commercial varieties and potential new cultivars in our Central Coast trials this season. One-ounce samples of "Zero in 30,000" seed would be appreciated.

We have a student who will complete the requirements for the MS degree this month. His name is Don Halseth. I thought you might wish to interview him.

Many thanks for your cooperation during the past season.

Best regards,

Jim

James E. Welch
Associate Olericulturist

JEW:fm

EXHIBIT B

Botanical Description of the Variety

Calmaria belongs to the crisphead class of lettuce varieties and to the Great Lakes varietal type. Calmaria most closely resembles Calmar but is earlier, more uniform in maturity, has smaller head size, and surer-heading ability as evidenced by a more solid, compact head when maturing under warmer weather conditions.

The head color of Calmaria is medium dark green similar to Calmar but lighter green than Montemar. The wrapper leaves are slightly shorter than Calmar but usually afford adequate cover for the head. The margins of the wrapper leaves are slightly more frilly than Great Lakes 118 and are similar to Calmar. The butt shape of Calmaria is flat and the heads are slightly flattened round in cross section. Overall butt appearance is good with color ranging from medium to dark green and glossier than Great Lakes 118. The heads are smaller in size than Calmar or Montemar and do not have the tendency to become puffy when harvested July 1 to late September in the warmer portions of the coastal areas of central California. Calmaria averages 3 to 5 days earlier than Calmar and 1 to 3 days earlier than Montemar.

Harvested heads of Calmaria show no suckers of significant size. The basal core diameter averages smaller than Calmar and seedstalk elongation is slightly slower. Leaf margins near the core are more frilly and the midribs protrude slightly more than Great Lakes 118. Calmaria has a better fold rate than Calmar and produces more solid, compact heads, especially during relatively warm weather. Head leaf texture and flavor is similar to Calmar.

Calmaria has good resistance to downy mildew, a disease caused by the fungus Bremia lactucae Regel. Calmaria has good resistance to tipburn but, during periods of relatively high temperatures, is slightly more susceptible than Calmar. Calmaria is resistant to brown rib and susceptible to lettuce mosaic, big vein and turnip mosaic.

Calmaria is white seeded and has a much lower incidence of the black seed mutation than found in Calmar. Calmaria also has a much lower incidence of the natural rogue mutation found in Calmar. The natural rogue mutation is a semi-cos type plant with longer, narrower, darker green leaves and poorer heading ability than the Great Lakes varietal types.

Calmaria performs best when planted from May 1 to July 25 in the Salinas - Watsonville district and the Santa Maria area for harvest from early July to late September. When grown in the recommended period, Calmaria consistently yields a significantly higher number of cartons of lettuce per acre on the first cutting and a higher total number of cartons per acre following the second cutting than Calmar. Plantings

of Calmaria for harvest in early spring usually produces less desirable marketable heads than Calmar with poorer color and more of a yellowish fringe burn on the wrapper leaves.

Cultural practices are more critical in the growing of Calmaria than Calmar or Montemar. Due to the normally smaller head size and surer heading characteristic of Calmaria, it is essential that adequate water be supplied prior to harvest for the variety to reach marketable head size of two dozen per "Iceberg standard carton". It is also more critical that pre-plant fertilizer be used when the variety is grown on lighter soil types.

FORM GR-471
(4-3-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C

OBJECTIVE DESCRIPTION OF VARIETY
(LETTUCE)

INSTRUCTIONS: See reverse.

NAME OF APPLICANT(S)

Moran Seeds, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

1155 Harkins Road
Salinas, California 93901

FOR OFFICIAL USE ONLY

PVPO NUMBER
297 - 1 - 7400013

VARIETY NAME OR TEMPORARY DESIGNATION
CALMARIA

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. PLANT TYPE: [4][2]
10 = CUTTING (Leaf) 20 = STALK 50 = BUTTERHEAD 60 = LATIN 70 = OTHER (Specify) _____

30 = COS
31 = SELF-CLOSING GROUP
32 = LOOSE-CLOSING GROUP

40 = CRISPHEAD
41 = IMPERIAL GROUP
42 = GREAT LAKES GROUP
43 = VANGUARD
44 = NEW YORK GROUP

2. SEED COLOR: [1] 1 = WHITE 2 = BLACK 3 = YELLOW

3. ANTHOCYANIN: [1] 1 = ABSENT 2 = PRESENT

4. LEAF CONTAINING ANTHOCYANIN: [4] 1 = COVERED 2 = SPOTTED 3 = ALONG MARGIN 4 = ABSENT 5 = OTHER (Specify) _____

5. LEAF SURFACE TEXTURE: [2] 1 = SMOOTH 2 = BLISTERED

6. LEAF SURFACE REFLECTANCE: [2] 1 = DULL 2 = GLOSSY 3 = OTHER (Specify) _____

7. LEAF MARGIN: [2] 1 = STRAIGHT 2 = WAVY 3 = CURLED
[3] 1 = ENTIRE 2 = DENTATE 3 = INCISED 4 = DEEPLY INCISED 5 = OTHER (Specify) _____

8. LEAF SHAPE: [1] 1 = ROUNDED 2 = POINTED
[1] 1 = BROADER THAN LONG 2 = LONGER THAN BROAD 3 = OTHER (Specify) _____

9. LEAF COLOR: *(See reverse.)* [7] 1 = RED 2 = REDDISH-BROWN 3 = YELLOW 4 = YELLOWISH-GREEN 5 = GREYISH-GREEN 6 = BLUE-GREEN 7 = DARK-GREEN 8 = VERY DARK GREEN

10. HEADS: [1] 1 = SPHERICAL 2 = FLATTENED 3 = ELONGATE 4 = POINTED 5 = NON-HEADING

11. PLANT SIZE: *(See reverse.)* [2] 1 = SMALL 2 = MEDIUM 3 = LARGE

12. CULTURE: [1] 1 = SUMMER CROP 2 = WINTER CROP 3 = NOT SPECIFIC 4 = UNDER GLASS 5 = OTHER (Specify) _____

13. SIZE OF 10-DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT *(Growth Chamber)* **AT 25° C.:** *(Place a zero in first box (i.e. [0][2]) when size is 9 mm. or less.)* * See Attached Sheet

[4][9] mm. LENGTH OF SEEDLING [2][4] mm. LENGTH OF COTYLEDON [0][8] mm. WIDTH OF COTYLEDON

14. DISEASE RESISTANCE TO: *(Enter zeroes in box(es) where there is no special disease resistance.)*

[2] 1 = TIPBURN [1] 2 = MOSAIC [1] 3 = DAMPING OFF [2] 4 = DOWNY MILDEW
[1] 5 = SCLEROTINIA ROT [2] 6 = BROWN BLIGHT [1] 7 = BIG VEIN [ ] 8 = OTHER (Specify) _____

15. OUTLINE THE FOURTH LEAF: *(For standardization purposes, the fourth leaf should be taken from a 20-day old plant grown under constant light.)*

* See Attached Sheet

FORM GR-471 (REVERSE)

16. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY
Leaf color	*Calmar*
Leaf pigmentation	*Calmar*
Leaf shape	*Calmar*
Plant size	*Calmar (Larger than Calmaria)*
Head size	*Calmar (Larger than Calmaria)*

VARIETY	NO. OF DAYS TO HEAD MATURITY UNDER WINTER CROPPING	LOCATION	NO. OF DAYS TO HEAD MATURITY UNDER SUMMER CROPPING	LOCATION	NO. OF DAYS TO SEED STALK EMERGENCE UNDER SUMMER CROPPING	LOCATION
Submitted			*64 - 69*	*Salinas Valley*	*80 (Average)*	*Salinas Valley*
Similar			*67 - 74*	*Salinas Valley*	*77 (Average)*	*Salinas Valley*
Name of similar variety →			*Calmar*		*Calmar*	

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. C. M. Rodenburg, 1960, Varieties of Lettuce, An International Monograph, Institunt Voor de Veredeling van Tuinbouwgewassen, Wageningen, Holland.

2. L. L. Morse, 1930, Field Notes on Lettuce, published by Ferry-Morse Seed Co.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following lettuce varieties may be used as a guide to identify the eight colors listed on the form.

Color	Variety
Red	"Salad Trim"
Reddish-brown	"Ruby"
Yellow	"Salad Bowl"
Yellowish-green	"Oakleaf"
Greyish-green	"White Boston"
Bluish-green	"Bibb"
Dark-green	"Imperial" group
Very dark green	"Deer Tongue"

PLANT SIZE: The following varieties may be used as a guide to identify the plant type size:

TYPE	COMPARABLE VARIETIES		
	SMALL	MEDIUM	LARGE
Cutting (leaf)	Boston-Curled	Prize Head	Grand Rapids
Stalk (stem)	Celtuce	--	--
Cos	Express	Parris Island	Giant White
Crisphead	Mignonette	Hanson (Merit)	Climax
Butterhead	Tom Thumb	Big Boston	Mammoth Butter
Latin	Sucrine	Creole	Deer Tongue

EXHIBIT C

Objective Description of the Variety

13. Size of 10 day old seedling grown under constant light (Growth Chamber) at 25°C.

No growth chamber available. Data obtained from growing seedlings in flats in greenhouse under constant light. Temperatures were maintained at 25°C, as closely as possible. Length of seedling was measured from soil level in the flats.

15. Outline the fourth leaf.

Outline of fourth leaf taken from 20-day old plants grown under constant light in the greenhouse. Outlines pictured below are from a 20-day old plant of Calmaria and a 20-day old plant of Calmar.

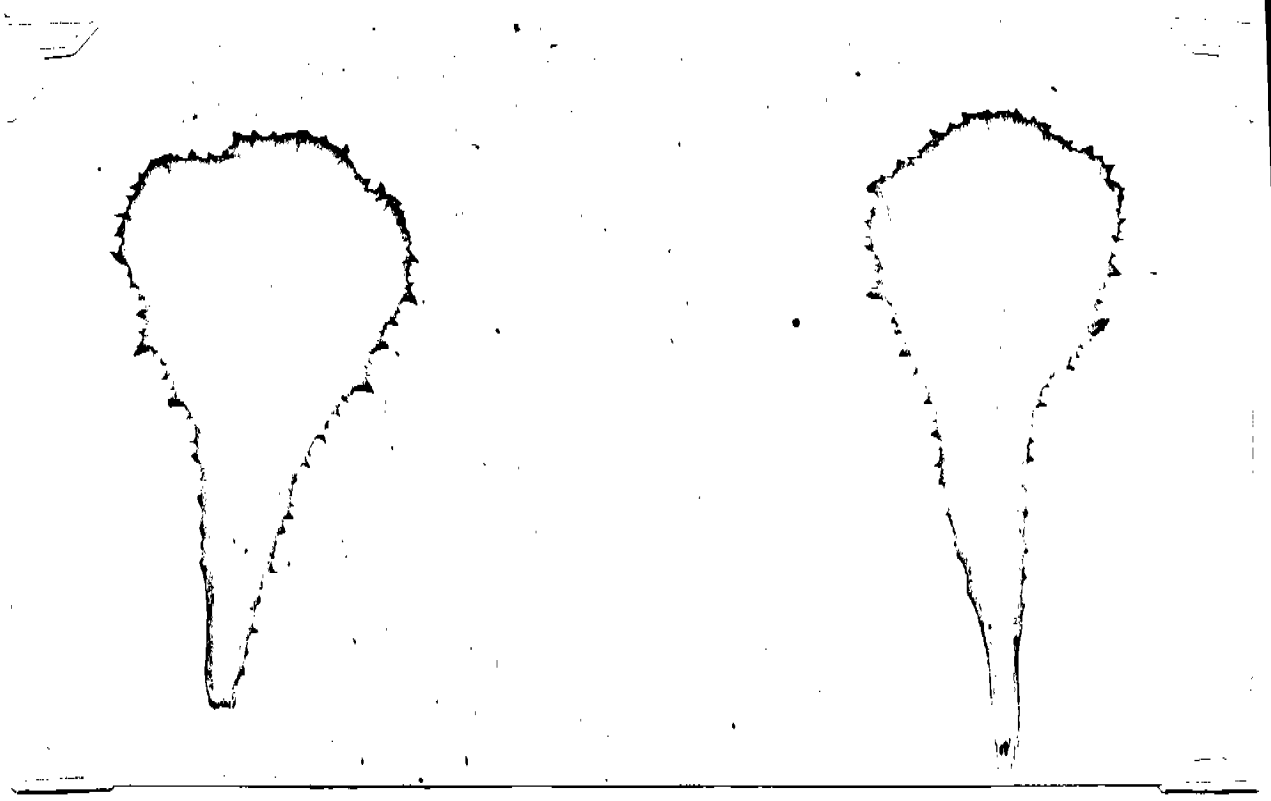


EXHIBIT D

Data Indicative of Novelty

Novelty is based on the following characters:

Calmaria is most similar to the variety Calmar from which it was first selected but differs in the following respects: (1) smaller head size, (2) 3 to 5 days earlier in maturity when grown in the recommended growing season, (3) more solid, compact heads when harvested July 1 to late September in the warmer portions of the coastal areas of central California, (4) superior uniformity of maturity, (5) slower seedstalk emergence, (6) slightly more susceptible to tipburn, and (7) lower incidence of off-types or rogues.

In addition a letter from Dr. James E. Welch, who is responsible for the development of Calmar, is included in Exhibit A which states that, in his opinion, Calmaria is a distinct new cultivar.

Photographs illustrating plant and head type, butt appearance and uniformity of maturity are attached.

EXHIBIT D

Data Indicative of Novelty (Photograph)

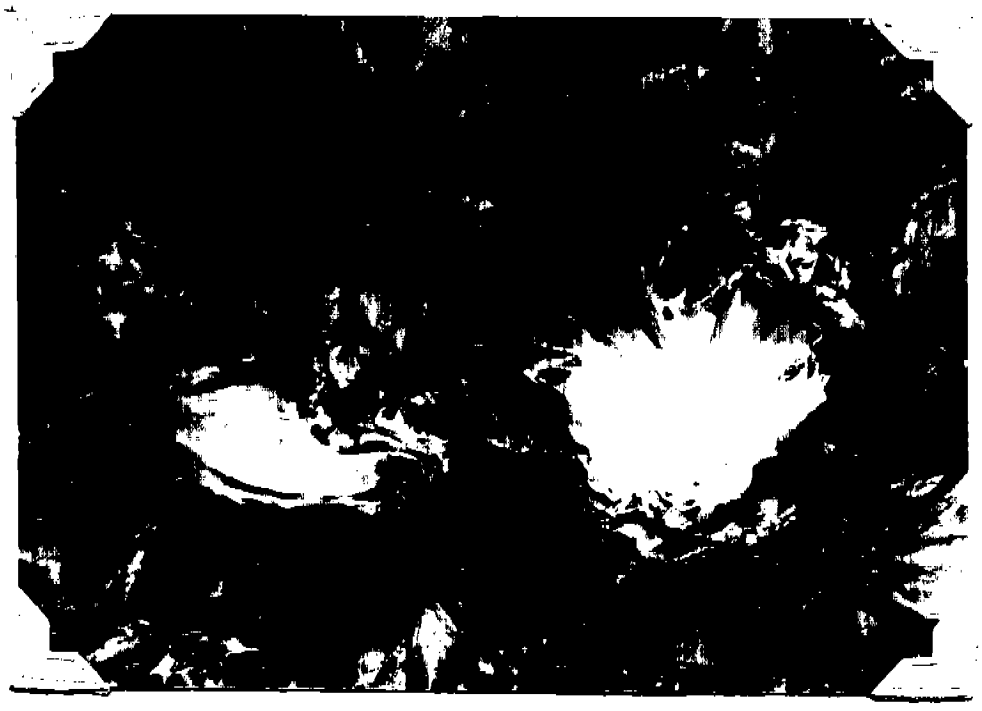
Photograph No 1: External appearance of the variety Calmaria illustrating the varietal characteristics of plant type, head shape, wrapper leaves, leaf texture and leaf margin.

'Calmaria'

740013

EXHIBIT D

Data Indicative of Novelty (Photograph)



Photograph No. 2: Overall butt appearance of the variety Calmaria at maturity illustrating butt shape, midribs, core diameter in relation to size of head, and the absence of suckers of significant size.

EXHIBIT D

Data Indicative of Novelty (Photograph)

Photograph No. 3: Illustration of the variety Calmaria in a commercial field prior to harvest showing the uniformity of type and maturity which are two of its most striking characteristics.

Amendment - Application For Plant Variety Protection Certificate

The applicant, Moran Seeds, Inc., declares that a viable seed of the lettuce variety Calmaria will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

August 31, 1973
(DATE)

Donald B. Bergam
(SIGNATURE OF APPLICANT)

EXHIBIT E

Statement of the Basis of Applicant's Ownership

Moran Seeds, Inc., Salinas, California, believes it is the sole, original and first breeder of the Calmaria variety of lettuce for which it solicits a certificate of protection; that it has sexually reproduced the variety; that it does not know and does not believe that the same was ever a public variety before Moran Seeds, Inc. development thereof; that it is the sole owner of the variety; that application has not been made in a foreign country for rights nor have rights been granted in any foreign country for this variety prior to the date of this application; that before the date of determination of the variety by the owner, or his privies, or more than 1 year before the effective filing date of the application, the variety was not effectively available to workers in this country and adequately described by a publication reasonably deemed a part of the public technical knowledge in this country.

Moran Seeds, Inc., further believes that although the first sale of the variety Calmaria was made May 11, 1972, it is entitled to protection under the Plant Variety Protection Act for the following reasons: (1) a total of only 66 pounds seed of the variety was sold prior to September 11, 1972, (2) the seed sold was with the understanding that the variety had not been tested under actual commercial field conditions and that plantings by the growers would be of an experimental nature until the variety had been proven to be new and unique under actual commercial field conditions, (3) the applicant did not effectively determine that the variety was eligible for protection under the Plant Variety Protection Act until September 11, 1972, at which time the experimental commercial field plantings had been harvested and the results evaluated.

7400013

ASSIGNMENT

WHEREAS, Moran Seeds, Inc. ("Moran"), a corporation duly organized and existing under the laws of the State of Delaware is the owner of United States Plant Variety Protection Certificates (the "Certificates"), listed in Exhibit A hereto and Pending United States Plant Variety Protection Applications (the "Applications"), listed in Exhibit B hereto; and

WHEREAS, in accordance with a Technology Transfer Agreement (the "Transfer Agreement") among Celanese Corporation ("Celanese"), Moran Seeds, Inc., Joseph Harris Company, Inc., CelPril Industries, Inc., Harris Moran International B.V. ("Sellers"), Virginia Chemicals, Inc., Les Produits Organiques du Santerre-Orsan S.A. ("Orsan"), HMS Acquisition Inc., CP Acquisition Inc., and Exploitatiemaatschappij Wolwevershaven B.V., dated January 10, 1985, and a Purchase Agreement dated December 7, 1985, as amended, among Celanese, Sellers and Orsan, Orsan has purchased from Moran said Certificates and Applications.

NOW, THEREFORE, in accordance with said Transfer Agreement and Purchase Agreement, Moran assigns to Orsan all of its rights, title and interest in and to said Certificates and Applications.

Moran hereby authorizes Orsan to apply for and obtain the recordation of this Assignment. Moran agrees that it shall, without further consideration, promptly and duly cause to be performed such lawful acts and execution of any other documents as Orsan may reasonably request in order for Orsan to obtain the full benefits of this Assignment and to permit Orsan to be duly recorded in each office, bureau and tribunal in the appropriate jurisdiction as the registered owner or proprietor of each of the rights hereby assigned. Such instruments and documents shall include, without limitation, such applications, affidavits and other documents for filing in such jurisdictions as Orsan may from time to time reasonably request.

By these presents Orsan does hereby accept this Assignment and authorize the recording thereof with the appropriate authorities aforesaid.

IN WITNESS WHEREOF, the parties have caused this Assignment to be executed by its proper officers thereunto duly authorized this 10th day of January, 1985.

MORAN SEEDS, INC.,
Assignor

By: David A. Jenkins
David A. Jenkins
Vice President

LES PRODUITS ORGANIQUES DU
SANTERRE-ORSAN S.A.
Assignee

By: _____
Title: Attorney-in-fact

STATE OF New York

COUNTY OF New York

Before me, a Notary Public, in and for said County, personally appeared David Jones who acknowledged that he is Vice President of Moran Seeds, Inc., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Moran Seeds, Inc.

Sworn before me at New York this 10th day of January, 1985

Alex C. Lengyel
NOTARY PUBLIC

(Notary Public)

My Commission Expires:

ALEX C. LENGYEL
Notary Public, State of New York
Qualified in Queens County
Commission Expires March 30, 1986

STATE OF *New York*

COUNTY OF *New York*

Before me, a Notary Public, in and for said County, personally appeared *Patrice LeHodey* who acknowledged that he is *Attorney-in-Fact* of Les Produits Organiques du Santerre-Orsan S.A., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Les Produits Organiques du Santerre-Orsan S.A.

Sworn before me at *New York* this *10th* day of *January*, 19*85*.

Alex C. Lengyel
NOTARY PUBLIC

(Notary Public)

My Commission Expires:

[illegible]
Notary Public, State of [illegible]
[illegible]
Q[illegible] Co[illegible]
Commission Expires [illegible] *6*

United States Plant Variety Protection Certificates

Cert. No.	Date Issued	Kind	Variety Name	Owner
7200145	10/30/74	Garden Bean	Gem	Moran Seeds, Inc.
7200146	11/15/74	Watermelon	Charleston 76	Moran Seeds, Inc.
7400013	5/9/74	Lettuce	Calmaria	Moran Seeds, Inc.
7400014	6/19/74	Lettuce	Cal K-60	Moran Seeds, Inc.
7400071	6/19/74	Lettuce	Cabrillo	Moran Seeds, Inc.
7600032	9/15/77	Lettuce	Vanagara	Moran Seeds, Inc.
7600039	12/8/77	Lettuce	Morangold	Moran Seeds, Inc.
7800028	5/31/79	Muskmelon	Valley Gold	Moran Seeds, Inc.
7900038	1/14/82	Garden Bean	Blue Duet	Moran Seeds, Inc.
7900039	7/15/82	Snapbean	Score	Moran Seeds, Inc.
7900066	11/27/79	Cauliflower	Snowball 123	Moran Seeds, Inc.
8000020	7/31/80	Muskmelon	Top Net	Moran Seeds, Inc.
8000082	12/10/81	Lettuce	Delmar	Moran Seeds, Inc.
8200019	10/28/82	Onion	OMO M	Moran Seeds, Inc. Oshita, Inc.
8200061	3/24/83	Watermelon	Sun Gold	Moran Seeds, Inc.
8200104	10/28/82	Tomato	Advantage	Moran Seeds, Inc.
8200105	11/26/82	Tomato	Moran 3053	Moran Seeds, Inc.
8200027	4/23/83	Lettuce	El Toro	Moran Seeds, Inc.
8100172	9/29/83	Lettuce	Van Mor	Moran Seeds, Inc.
8300113	8/31/84	Muskmelon	Top Net SR	Moran Seeds, Inc.

Exhibit B

Pending United States Plant Variety Protection Applications

Application No.	Filing Date	Kind	Variety Name	Owner
8100167	9/9/81	Lettuce	Yuma	Moran Seeds, Inc.
8300155	7/18/83	Celery	Bishop	Moran Seeds, Inc.
8300156	7/18/83	Celery	Deacon	Moran Seeds, Inc.
8300172	9/1/83	Tomato	Diego	Moran Seeds, Inc.
8400013	12/1/83	Lettuce	Greenfield	Moran Seeds, Inc.